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March 4, 2004

*Ex Parte Memorandum*

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 – 12<sup>th</sup> Street, S.W., Room TW-A325  
Washington, DC 20554

Re: In the Matter of Petition of Wireless Consumers Alliance *et al.*  
for a Declaratory Ruling Regarding Cellphone 911 Requirements  
in Response to Referral from the United States District Court for  
the Northern District of Illinois, dated October 3, 2003, WT Docket No. 99-328

In the Matter of Petition for Declaratory Ruling on 911 Call Processing  
Modes, AT&T Wireless Services, Inc., *et al.*, dated October 14, 2003,  
WT Docket No. 99-328

Dear Ms. Dortch:

Transmitted herewith for filing on behalf of the Wireless Consumers Alliance, *et al.* (collectively “WCA”) is the Declaration of Robert G. Zicker (the “Zicker Declaration”) in response to the *ex parte* comments of the Telecommunications Industry Association in the captioned proceeding on January 20, 2004 (the “TIA Comments”).

WCA’s interpretation of the *Second Report and Order* in CC Docket No. 94-102 is that the Commission addressed the “lock-in” problem experienced by cell phones operating in the analog mode by requiring the cell phones to switch to a non-preferred carrier unless *both* the mobile station (the handset) *and* the land station reached the “conversation state” within 17 seconds of a 911 call attempt. That is, in general terms, unless the land station also detects the SAT tone transmitted by the handset within 5 seconds after the land station has assigned a voice channel for the 911 call attempt, the handset must attempt the call on a non-preferred carrier. The lynchpin of the industry’s technical arguments in opposition, echoed in the TIA Comments, is that WCA’s interpretation is not plausible because, according to TIA, “there is no requirement in the current standards for the detection or monitoring of the SAT at the base station.” (TIA Comments at p. 5).

The Zicker Declaration demonstrates that TIA’s current claims are inconsistent with both its assurances to the Commission in 1999, on which the Commission relied in adopting the *Second Report and Order*, and the current TIA standards themselves. (See Zicker Declaration at ¶¶6-7) The Zicker Declaration also points out other inconsistencies between TIA’s position in 1999 and its claims today, as well as other inaccuracies in TIA’s recent filing.

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Should there be any questions concerning this filing, kindly contact the undersigned.

Very truly yours,

s/Kenneth E. Hardman  
Kenneth E. Hardman

Enclosure

## **DECLARATION OF ROBERT G. ZICKER**

I, Robert G. Zicker, declare as follows:

### **I. QUALIFICATIONS**

1. I am a consultant in the telecommunications field. I base this declaration on the knowledge acquired during a career spanning over forty years of active employment in telecommunications, the last twelve years of which were spent working exclusively in the cellular telephone industry. My work in cellular telephony involved the design and development of new products, services and systems. This design and development has resulted in my being awarded fifty-four patents covering cellular telephone systems, methods and apparatus. I have been qualified as an expert with respect to all aspects of cellular technology in both state and federal courts.

### **II. PURPOSE OF DECLARATION**

2. This declaration is being prepared at the request of the Wireless Consumers Alliance (WCA) who asked me to review the ex-parte filing of the Comments of the Telecommunications Industry Association filed in WT Docket No. 99-328 on January 20, 2004 (the "TIA Comments").

### III. FINDINGS

3. **The Commission posed critical questions to the industry on how calls to 911 could fail to get through.**

During the consideration of CC Docket 94-102, the Federal Communications Commission (Commission) solicited the inputs from all interested parties concerning ways to improve the ability of cellular users to reach help when they dialed 911 on their cellular handsets. I participated in the 911 phase of this proceeding as an expert on behalf of GTE Mobilnet and I am very familiar with all of the issues that were raised and considered with respect to technical issues. The Commission posed several questions to the cellular industry. These questions concerned the issue of "lock-in" and how the industry was proposing to address the problem. TIA (through CTIA) responded to these questions from the Commission with specific answers<sup>1</sup>. The recent submission by TIA contradicts some of these earlier answers upon which the Commission relied.

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<sup>1</sup> In the Ex-Parte filing of CTIA on February 22, 1999 (incorporating TIA's responses), we find the FCC question to industry: "Is it possible for a call to be locked-in to the A (preferred) carrier so that the call would not be switched in any case where the caller could not in fact communicate on the voice channel?"

TIA answer: "Yes... a call can be kept on a carrier's network if the selected FOCC (regardless of how selected) appears to be properly received and decoded *but voice communications cannot be established for any number of reasons, including:* ... (d) The mobile successfully receives the voice channel assignment and re-tunes but its transmitter power is insufficient for the modulated Supervisory Audio Tone (SAT) to be detected by the base station above the background noise or interference on the voice channel (a frequency discriminating detector). The speech path will be cut through only when SAT is properly detected. If either the mobile *or the base station* fail to detect SAT for 5 seconds running, both must abandon the call. The Motorola suggestion of Intelligent Retry, now before the TR-45 standards body, will automatically select and retry on the alternate carrier if a lock-in situation, such as those above, repeatedly results in lack of normal call conclusion (normal disconnect)." (Emphasis added).

4. **The Commission relied upon the representations of the TIA when the Commission described the capabilities of the Automatic A/B Intelligent Retry (A/B-IR) method of handling 911 calls.**

In the Second Report and Order (2R&O) issued in Docket 94-102 (FCC 99-96), the Commission, (relying upon the answers provided to its questions by the TIA) describes, in paragraph 31, the Intelligent Retry (IR) condition to its approval of the industry Automatic A/B proposal as follows: *"If this initial call attempt via the preferred carrier should fail, the handset would attempt to complete the call via the non-preferred carrier. If both call attempts should fail, the handset would continue to rescan and reattempt placing the call with both the preferred and non-preferred carrier, using the same algorithm, until the call is completed, the user terminates the call, or the handset loses power. If a voice channel is established but the 911 call terminates for some reason other than the user ending the call or the base station releasing the call -- for example, if the handset moves into a coverage gap or encounters some other transmission problem -- the handset would automatically reattempt the call using the same algorithm."* (Emphasis added). The Commission went on in paragraph 35, *"We conclude that the sequential procedure in IR by which the handset initiates a new call attempt when the 911 call fails for any of several reasons, including the lack of a control channel or a voice channel at the time of call set-up and the loss of signal during a call, is a reasonable and effective approach to ensuring that 911 calls are switched to the other cellular carrier when necessary. This algorithm thus should effectively address the lock-in problem."* (Emphasis added). The Commission imposed an additional requirement on the use of A/B-IR that is addressed in 7. below.

**5. TIA failed to implement the requirements of the 2R&O when it issued TSB-119 in spite of its representations to the Commission.**

In the TIA Comments, section III page 7, TIA states that “TIA took note of the changes made” in the 2R&O, and “efforts were undertaken to implement these changes in TSB-119”. However, TIA’s discussion goes on to confirm that TSB-119 did not adequately implement the Commission’s requirements for the approved A/B-IR as described in paragraphs 31 and 35, quoted above. Specifically, under TSB-119, if a call to 911 is abnormally terminated due to signal loss during the call, the handset will stay on the preferred carrier system and not switch to the non-preferred carrier (this is lock-in). TSB-119 failed to modify TIA/EIA 553A section 2.6.4.1 Loss of Radio Link Continuity, which is the only section in the handset specifications that deals with the abnormal termination of a call, i.e. coverage gaps, deep signal fades, interference, etc. This failure of TSB-119 therefore guarantees lock-in, e.g. should the preferred carrier base station fail to hear the handset on the voice channel; the handset will continue to attempt the call on the preferred carrier. The description on page 7 of the TIA Comments is accurate in how TSB-119 handles the emergency call flags, however, TSB-119 fails to modify TIA/EIA 553A section 2.6.4.1, the only task that detects an abnormal call termination. This failure of TSB-119 prevents the handset from switching to the non-preferred carrier when lock-in occurs.

In short, TSB-119 does not address the issue of lock-in that was the principal problem addressed in the 2R&O. The manufacturer’s failure to address lock-in is the central point of the FCC petition filed by the Wireless Consumers Alliance and other plaintiffs in the civil litigation.

6. **TIA recants the answers provided to the Commission on the base station use of the handshake signal known as SAT, when, in fact, the cellular system cannot operate based upon TIA's current position.**

In the TIA Comments, section II page 5, TIA now claims that "there is no requirement in the current standards for the detection or monitoring of the SAT at the base station." However, returning to the answers provided by the TIA to the Commission question on the issue of lock-in (see footnote 1 above), TIA, in 1999, inconsistently assured the Commission that if the mobile station's: "transmitter power is insufficient for the modulated *Supervisory Audio Tone (SAT) to be detected by the base station* above the background noise or interference on the voice channel (a frequency discriminating detector). The speech path will be cut through only when SAT is properly detected." (Emphasis added). Also, by examining the very standards that TIA refers to (TIA/EIA 553A) in section 3.6.4 we find the current requirement that: "Whenever the mobile station is transmitting on a voice channel, changes in the status of the supervisory audio tone (SAT) and signaling tone (ST) are used to signal the occurrence of certain events during the progress of a call. These events include confirming orders, sending a release request, sending a flash request, and loss of radio-link continuity. ... These status changes *shall be detected by the base station* and interpreted within the context of the task the base station is in..."(Emphasis added). Prior versions of these same standards all contain the same requirement but use the term "*must be detected*" instead of "*shall be detected*". (Emphasis added). This requirement existed since the original 1980 specifications were issued (see OST-53).

The TIA Comments similarly claim, incorrectly, that the TIA/EIA 553A standards do not define SAT detection, citing certain sections of that standard that are marked "Reserved". However, the "Reserved" annotation does not mean "NOT DEFINED", it simply means that the definition has

already been created in the mobile section and the base station section must not change this definition.

Again, referring back to footnote 1, TIA, in 1999, clearly acknowledged that lock-in will occur when the mobile's: "transmitter power is insufficient for the modulated Supervisory Audio Tone (SAT) *to be detected by the base station* above the background noise or interference on the voice channel (a frequency discriminating detector)." (Emphasis added). In 1999, TIA recognized that the base station not only detects SAT, but uses the same method to detect SAT as the mobile station. Inconsistently, TIA now claims, in 2004, that "there is no requirement in the current standard for the detection or monitoring of the SAT at the base station."

**7. TIA recants the answers provided to the Commission on the base station use of a "fade timer", when, in fact, the cellular system cannot operate based upon TIA's current position.**

In the TIA Comments, section III, page 7, TIA further claims now that: "The analog standards do not require the base station to monitor, detect or have a fade timer specified for SAT." Referring back to footnote 1, we find TIA's 1999 statement "If either the mobile or the base station fail to detect SAT for 5 seconds running, *both must abandon the call.*" (Emphasis added). This is known as the "fade timer", and the Commission relied upon the existence and function of this timer at both the mobile and the base station<sup>2</sup> when it specified in paragraph 41 of the 2R&O that "two basic call processing tasks that must be performed and completed if a call attempt is to be successful after the call is sent: in the first task, a handset waits up to 12 seconds to receive a voice channel assignment from a base station; in the second task, *the base station waits up to 5 seconds to receive a voice channel transmission from the handset.*" (Emphasis added). And in footnote 52 of the

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2 The Commission referenced in footnote 51 of the 2R&O the description of the base station fade timer function in Dr.



2R&O, the Commission elaborated on this requirement with “we are seeking to ensure that communication between the handset and the base station on the voice channel goes beyond Conversation State and reaches the point where the handset’s voice channel transmission *is indeed received at the base station.*” (Emphasis added).

In 1999, the Commission relied upon TIA’s assurances that should the base station fail to hear the handset on the voice channel, it would drop the call and the handset would automatically switch to the other carrier and reattempt the call. TIA now seeks to repudiate those assurances. The cellular network could not function if voice channels were not continuously monitored by the base station and released for others to use should a handset lose contact with the base station.

**8. A manufacturer’s complying with TSB-119 will not produce a handset that is compliant with the 2R&O.**

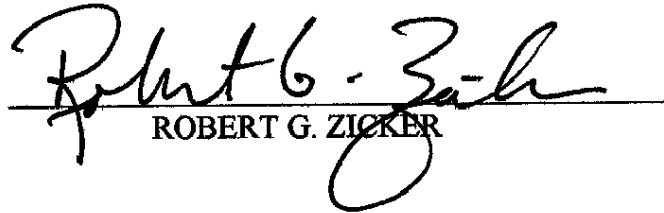
TIA’s assertion that TSB-119 already complies with the 2R&O is apparently designed to demonstrate that no further action is required for the handsets to be in compliance. However, as shown above, TSB-119 fails to implement the requirements of the 2R&O. In addition, TIA’s assertion that large scale changes to the standards would be required to implement WCA’s interpretation of the 2R&O is also incorrect. The base station standards contain the very elements the Commission described in the 2R&O in 1999 and have contained them since the beginning of cellular service.

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W.C. Lee’s book Mobile Cellular Telecommunications page 91 (1995).

I declare under penalty of perjury that the foregoing is true and correct.

Executed on March 4, 2004, at Southside, Alabama.

  
ROBERT G. ZICKER